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Short Communication

Developing Tools for Health Impact Assessment in Environmental Impact Assessment in Thailand

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The purpose of this research was to develop tools applicable to the Health Impact Assessment (HIA) in Environmental Impact Assessment (EIA) in a Thai context. The relevant documents and articles were extensively reviewed, analyzed, and drafted. The first draft was presented to a research advisory committee for their review, and the recommended changes were subsequently made. The second draft was then presented to respondents from 6 groups of key stakeholders-expert review committees under the Office of Natural Resources and Environmental Policy and Planning (ONREPP), EIA registered consulting firms, non-government organizations, members of the ONREPP, local government organizations, and government organizations responsible for issuing permission to the proposed projects. Their commentary and recommendation were considered, and modifications were made as necessary. The third draft was finally reviewed by the research advisory committee before the tryout step. The final revised version is presented in this paper.

Key words: tools, HIA in EIA, Thailand

HIA (Health Impact Assessment) has been recognized in Thailand as a tool to consider the ways in which a policy, program, or project has the potential to impact the health of people, including consideration of the distribution of those impacts. The principle of HIA is to influence decision-makers to enhance positive impacts and to reduce or mitigate negative impacts of the proposed projects. Of the most concern is negative impacts distributed to vulnerable groups, including children, the elderly, and pregnant women.

Two forms of HIA have been established in Thailand [1]. First, HIA for HPP (Health Impact Assessment for Healthy Public Policy) is the HIA process to move towards HPP by exploiting the concept of health promotion. HIA in this form is recog-

nized as participatory learning rather than an approval mechanism. Second, HIA in EIA (Health Impact Assessment in Environmental Impact Assessment) is the process of incorporating HIA into EIA. In this form, HIA is recognized as an approval mechanism under the umbrella of the EIA process. The scope of HIA in EIA is mainly concentrated at the level of individual projects, especially for those with potentially significant impacts.

This research focused on the HIA in EIA, since the practical weaknesses of this approach have been pointed out. The Office of Natural Resources and Environmental Policy and Planning (ONREPP) has translated and established the HIA general guidelines on the basis of 5 steps- screening, scoping, appraisal, reporting, and monitoring and evaluation- addressed by WHO [2], but several limitations have been noted. The HIA practitioners feel that there is a struggle to implement the following guidelines because details

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regarding tools that can be used to achieve the objective(s) of each step are unclear; in addition, there is a lack of knowledge and experience of how to assess the link between the environment and health issues. The new definition of health dictated by the WHO is also ambiguous among them, especially with regard to social and spiritual health. Additionally, understanding of the HIA among the expert review committee showed inconsistency, and guidelines for them to judge by or to give supplemental comments on the HIA report have not been established. Consequently, trust and credibility regarding the decision making process are insufficient. The objective of this research was to develop appropriate tools for HIA in EIA that could aid HIA practitioners in carrying out the HIA process.

Materials and Methods

This research was conducted in 2 phases. The first phase was to develop tools and guidelines for HIA in EIA, and the second was to implement these tools. In this article, we focus only on the first phase, and the latter will be published soon. To develop tools and guidelines, 5 complementary approaches were undertaken to gather relevant information.

- (1) Extensively review of literature regarding the HIA in EIA both in Thailand and in other countries. Appropriate information likely adaptable to the Thai context was analyzed and interpreted [1–14].
- (2) Developing the first draft (Fig. 1).
- (3) Presenting the first draft to the research advisory committee for their recommendation. Making necessary changes. The revised version was the so-called “second draft.”
- (4) Organizing brainstorming sessions for 6 groups of key stakeholders for their comments and recommendations for the second draft. Those included an expert review committee under the ONREPP (21 persons), EIA registered consultant firms (42 persons), non-government organizations (14 persons), members of the ONREPP (6 persons), local government organizations (14 persons), and government organizations responsible for issuing permission to the proposed projects (7 persons). Again making changes if necessary. The re-

vised version was the so-called “third draft.”

- (5) Final presentation of the third draft to the research advisory committee and experts for their recommendations. Making changes if necessary before the tryout step. The revised version was the so-called “final draft.”

All procedures were carried out with the adequate understanding and written consent of each subject.

Results and Discussion

We found that resources available for HIA in EIA and impacted areas to be studied should be initially prepared alongside the formation of committees that are credibly involved in the process before jumping to the screening step. It is also essential that an initial or pre-step be included in the HIA guidelines. We have proposed 6 steps for HIA in EIA, including an initial or pre-step, screening, scoping, appraisal, reporting and review, and monitoring and evaluation. The flow diagram for each step is shown in Fig. 2. The details of each step are described below.

Initial step. The purpose of the initial step was to prime both community and resource data available for impact assessment, especially chemical inventory, demographic data, and population profiles. The supplementary output expected from this step was the institution of 2 committees. The first group performs as the steering committee and the latter acts as the working group committee. Responsibilities of the working group committee include implementing the HIA, organizing and publicizing community meetings, monitoring and evaluation, and identifying key stakeholders. The steering committee was responsible for consulting and navigating. The group members should be multidisciplinary, including industrial owners, EIA consulting firms, healthcare workers in the impacted area, community leaders, and those concerned.

Screening step. The aim of this step was to address the community's concerns regarding their health with a holistic approach. The public participation process as so-called “public screening” was also conducted. We defined this activity as “an early and open process for bridging relationship and transferring messages from the industrial side to the community side.” This concept was approved by those attend-

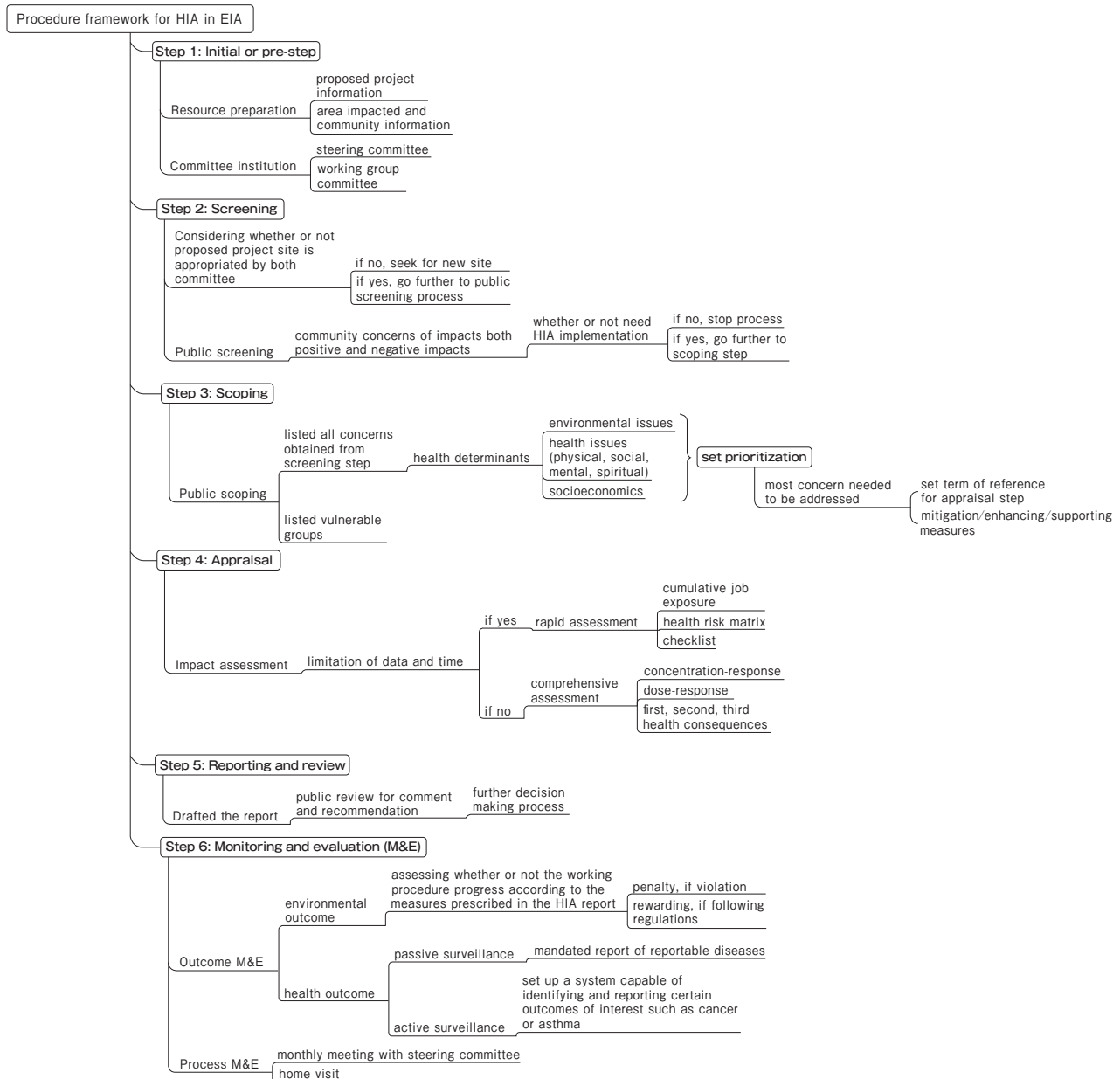


Fig. 1 Proposed the first draft of a skeletal framework for HIA in EIA.

ing the brainstorming sessions. The challenge was how to simply present manufacturing processes, chemicals in use, waste management, and exposure results in a way in which information that could support individual and community actions could address their concerns. The risk communication strategy was taken into consideration. The presenter may also raise additional questions during the presentation, including how the projects would change any health determinants and

whether individuals would be at a high level of exposure. Their messages would allow us to reinforce and determine whether the HIA was likely to be implemented.

Scoping step. This step was recognized as a vital step in the HIA process since the relevant important health issues and other significant issues related to the proposed projects were identified and scoped. A public scoping meeting was organized in order to

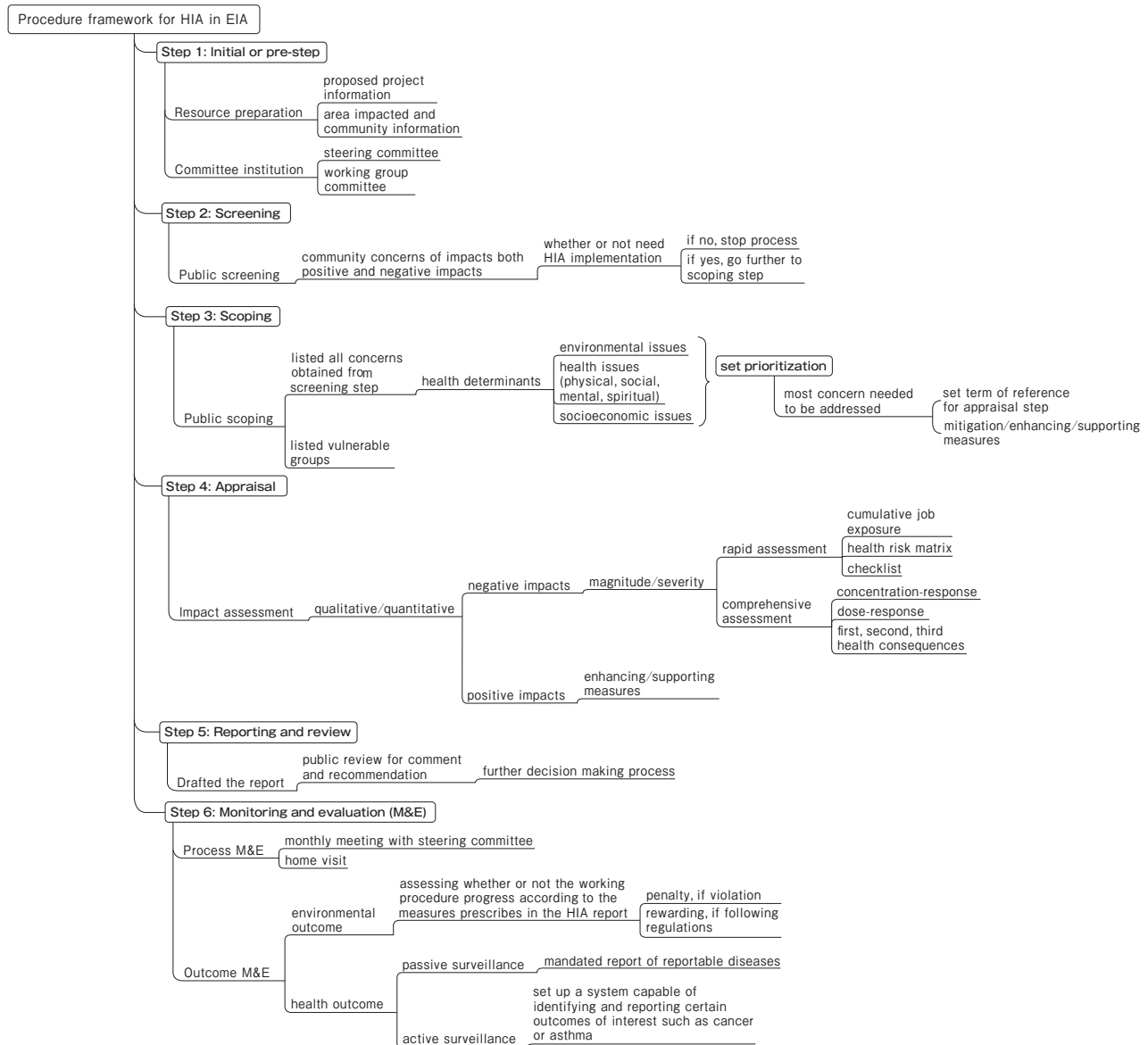


Fig. 2 Proposed a skeletal framework for HIA in EIA.

assist the HIA conductor with focusing and determining the significant issues to be assessed, including vulnerable groups. The messages obtained from such a meeting were listed and categorized into three groups: environmental issues, health issues (physical, mental, social, and spiritual), and socioeconomic issues. They were then prioritized to determine those most needing to be assessed.

The community and all concerned parties were solicited regarding their perception of the potential impacts, either positive or negative, and the distribu-

tion of impacts, as well as who would be the most impacted. Their suggestions regarding resources to be evaluated, reasonable alternatives to be considered, check and balance processes, and mitigation measures were also acquired. The output obtained from this step served as a term of reference for impact assessment in the appraisal step.

Appraisal step. This step attempted to assess health impacts or the distribution of these impacts. There were 2 perspectives. If positive impacts were indicated, it was necessary to establish supporting and

enhancing measures. If negative impacts were pointed out, it was necessary to consider both quantitative and qualitative methods for assessments. We proposed 2 models for assessing the negative impacts-rapid assessment and comprehensive assessment.

We define the term "rapid assessment" as a quick and straightforward process, whereas the term "comprehensive assessment" refers to a summative and multidisciplinary process. The model selection relied on levels of magnitude or severity of impact determinations from the scoping step. If large impacts were indicated, the comprehensive model was considered, and if fewer impacts were expected, the rapid model was taken into account. Cumulative job exposures, a health risk matrix, and a checklist were examples of tools used in the rapid assessment process. Questionnaires were used as a tool for data collection. The intelligible HIA results were interpreted and indicated as low, medium, or high risk. For the comprehensive assessment, multidisciplinary concepts such as epidemiology, toxicology, medicine, environmental science, environmental engineering, computer modeling, and economics were applied and integrated in order to obtain reliable predictions for decision-makers. A variety of quantitative risk assessment applications such as concentration-response, dose-response, and exposure-response functions were used to estimate health risks associated with a variety of hazards in the affected environment. Primary, secondary, and tertiary health consequences were predicted formatively and summatively.

However, it was very difficult and rarely possible to achieve this comprehensive assessment unless expert specialty, resources and information, budget, and time were available and complete. Qualitative in-depth interviews were also undertaken with key informants involved in the proposed projects so that their experiences and views of the impacts could be explored.

Reporting and review step. The purpose of this step was to summarize and document the recommendations, especially those to get rid of or mitigate the negative impacts and those to enhance the positive impacts. The public participatory meeting was again organized to hear all stakeholders' commentaries and recommendations to the HIA report prior to submission to the decision-makers.

Monitoring and evaluation step. The moni-

toring and evaluation (M&E) step was set as a core element of the HIA process. It was established in the HIA in EIA report to be conducted after the project was approved, constructed, and carried out. The purpose of this step was aimed at establishing appropriate surveillance activities to monitor health impacts and to improve the evidence. Theoretically, the M&E are intimately related [12, 13]. In this research, we proposed 2 levels of these activities-process and outcome M&E.

The process M&E served as an ongoing process that provided some of the basic data necessary to conduct an evaluation. The continuous flow of information collected during this process was aimed primarily at providing stakeholders with regular feedback and early indications of progress [13]. The proposed activities undertaken in this process were a home visit and monthly meeting with the steering committees. The monthly meeting aimed to ensure that the working procedures were carried out in a structured and systematic way of measurement prescribed in the HIA report. The home visit intends to convey messages, especially health risk information, from the minutes of the meeting and to provide some new knowledge to the community to improve their health. The systematic collection of data from the process M&E allowed a judgment to be made about the value of the process and reflection about what was happening, and it also provided an assessment of whether this process had been achieved.

The goal of outcome M&E was to set up surveillance systems for environment and health. Although we realized that there are difficulties in evaluating long-term health outcomes or whether predicted impacts have actually occurred, we proposed 2 approaches to challenge these difficulties. The first approach was regarding environmental outcome M&E. Assessing whether or not the working procedure progressed according to the measures prescribed in the HIA report served as an environment outcome indicator. There should be a penalty code in case of violation; otherwise a reward system for following the regulations should be set up.

The second approach was for health outcome M&E. The conception of active and passive surveillance was offered. Passive surveillance denoted surveillance that can be conducted by using mandated report of reportable diseases such as Report 506 of the Bureau of

Epidemiology, Department of Diseases Control, Ministry of Public Health, Thailand. Active surveillance denoted a system in which the project respondents set up a system capable of identifying and reporting certain outcomes of interest. This reporting is usually carried out for some concerning and rather specific outcomes such as asthma and some types of cancers. A retrospective epidemiologic method has been applied. The data collection method may involve interviewing physicians or patients and reviewing medical records. Consequently, specific preventive measures and surveillance systems should be established. Despite the active surveillance being more difficult and expensive to carry out than passive surveillance, its results would add to the values of the health outcome M&E for further decision-making process.

The M&E processes have been criticized as just temporary or routine "documented" processes, and nobody has been concerned whether these M&E processes would really occur. To reduce this controversy, we proposed that a check and balance process be carried out, working alongside the M&E process, in order to investigate and ensure that the M&E process achieves its own objectives, and to facilitate the involvement of residents whose voices were not heard. Members of the check and balance team might be the same persons as those in the working or steering committee, and, importantly, persons who are trusted and respected by community should also be part of the team.

Conclusion

We conducted this research in order to develop tools appropriate for health impact assessment in Thailand. The strength of this research was the brainstorming sessions among key stakeholder informants. We not only solicited their ideas and comments from the participants, but also educated them and increased the awareness of HIA among the scientific community. The main finding was that participants were aware of the importance of the monitoring and evaluation step and the need to engage in the HIA process from the start. They believed that their individual experiences could provide some valuable information that could add value to the HIA process. These perceptions should be taken into consideration

when implementing. However, one of the weaknesses of this research was the qualitative nature of the process. We did not ask the participants to vote or quantitatively answer any specific questions. To compensate for this weakness, we planned to try out the HIA process with our proposed tools to see if it was useful. We planned to conduct the HIA in 2 settings: a petrochemical plant and an electricity-generating plant. The results of these attempts will be published later.

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